

***Status of the Claims***

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (currently amended) A deformable optical system, comprising:
  - a reflection device having a first reflecting surface and a second surface;
  - an integrated circuit actuator having moveable extensions extending from a support surface and coupled to the second reflective surface;
  - electrodes individually coupled to corresponding ones of the extensions; and
  - a controller coupled to the electrodes configured to control the extensions via the electrodes; and
  - a measuring system that measures a wavefront aberration.
2. (original) The deformable optical system of claim 1, wherein the reflection device is a mirror.
3. (original) The deformable optical system of claim 1, wherein:
  - the integrated circuit actuator is a piezoelectric device;
  - the support device is a piezoelectric chuck; and
  - the extensions are piezoelectric pins fabricated on the piezoelectric chuck.
4. (original) The deformable optical system of claim 1, further comprising:
  - a conductive coating on a surface of the support device having the extensions; and
  - a conductive coating on the electrodes.
5. (currently amended) The deformable optical system of claim 1, ~~further comprising: a measuring system that measures a wavefront aberration,~~ wherein the controller controls the extensions based on the measured wavefront aberration.

6. (original) The deformable optical system of claim 5, wherein a number of the extensions used corrects higher order portions of the measured wavefront aberration.

7. (original) The deformable optical system of claim 5, wherein a number of the extensions used corrects for all orders of the measured wavefront aberration.

8. (cancelled)

9. (currently amended) The deformable optical system of claim 1 ~~1~~ 8, wherein a number of the extensions used corrects at least one of Zernike polynomial terms and other representations of the wavefront error.

10. (original) The deformable optical system of claim 1, wherein the control system measures a change in capacitance of the extensions to determine characteristics of movement of the extensions.

11. (original) The deformable optical system of claim 10, wherein the characteristic of movement of the extensions corresponds to a characteristic of movement of the first reflecting surface.

12. (original) The deformable optical system of claim 1, wherein the reflection device is substantially planar.

13. (withdrawn) The deformable optical system of claim 1, wherein the reflection device is curved.

14. (original) The deformable optical system of claim 1, wherein a height of the extensions correlates to an amount of decoupling of the extensions from each other.

15. (original) The deformable optical system of claim 1, wherein the extensions are from less than 1 micron to more than 1 millimeter in width or diameter.

16. (currently amended) A deformable optical device, comprising:  
a reflection device having a first reflecting surface and a second surface;  
an integrated circuit actuator having a support device and moveable  
extensions extending therefrom, which are coupled to the second surface; and  
electrodes coupled to corresponding ones of the extensions; and  
a measuring system that measures a wavefront aberration, which  
measurement is configured to be used to control the extensions via the electrodes.

17. (original) The deformable optical device of claim 16, wherein the reflection  
device is a mirror.

18. (original) The deformable optical device of claim 16, wherein:  
the integrated actuator is a piezoelectric device;  
the support device is a piezoelectric chuck; and  
the extensions are piezoelectric pins fabricated on the piezoelectric chuck.

19. (original) The deformable optical device of claim 16, further comprising:  
a conductive coating on a surface of the support device having the  
extensions; and  
a conductive coating on the electrodes.

20. (original) The deformable optical device of claim 16, wherein the reflection  
device is substantially planar.

21. (withdrawn) The deformable optical device of claim 16, wherein the  
reflection device is curved.

22. (original) The deformable optical system of claim 16, wherein the  
extensions are from less than 1 micron to more than 1 millimeter in diameter or width.

23-25 (cancelled)

26. (original) The deformable optical system of claim 1, wherein a number of the extensions is at least up to 1 million per square millimeter.
27. (original) The deformable optical system of claim 1, wherein:
  - the integrated circuit actuator is a piezoelectric device;
  - the support device is a piezoelectric chuck; and
  - the extensions are at least one of piezoelectric pins, strips, and concentric rings fabricated on the piezoelectric chuck.